DESCRIPTION

PLASMA-GENERATION POWER-SUPPLY DEVICE

Technical Field

[0001] The present invention relates to a power-supply device for use in generation of plasma, and particularly to a power-supply device for use in plasma generation with an ozonizer, flat-plate light source, laser oscillator, and the like.

Background Art

[0002] In a discharge system called dielectric barrier discharge or silent discharge, an alternating voltage is applied to oppositely placed electrodes with the high-potential electrode covered with a dielectric, so as to cause a discharge. This type of discharge is used in a wide variety of industrial applications that utilize chemical reactions with plasmas, because the discharge does not change to an arc and the electron temperature is stably kept high.

[0003] A particularly typical application thereof is that to ozonizers or ozone generating apparatuses, and so the dielectric barrier discharge is sometimes called ozonizer discharge. Other apparatuses that utilize this type of discharge include flat-plate light sources, carbon dioxide gas lasers, plasma displays, and the like. In particular, the electric operating region of flat-plate light sources is the closest to that of ozonizers.

[0004] Such ozone generating apparatuses and laser oscillators require power-supply devices for plasma generation. An example of such a plasma-generation power-supply device is disclosed in FIG. 12 of Patent Document 1. The structure of this example includes a discharging load in which a dielectric is interposed between a pair of oppositely placed electrodes to form a gas region serving as a discharging space, and the gas in this discharging space is excited to generate a plasma. The structure also includes